

CLAIMS

What is claimed is:

- 5           1.     A semiconductor substrate having a multi-layered spacer, comprising:  
a plurality of gate electrodes each including a gate oxide layer, a gate conductive  
layer, and a capping dielectric layer formed on a semiconductor substrate;  
a gate polyoxide layer formed on sidewalls of the gate oxide layer and the gate  
conductive layer and being in contact with a predetermined portion of the semiconductor  
10 substrate;  
a silicon nitride layer being in contact with the sidewalls of the capping dielectric  
layer and the gate polyoxide layer;  
an oxide layer being in contact with the silicon nitride layer; and  
an external spacer being in contact with the oxide layer.
- 15           2.     The semiconductor substrate of claim 1, further comprising:  
a pad formed in a region between adjacent gate electrodes having the multi-  
layered spacer and being in contact with the semiconductor substrate; and  
an interlevel dielectric layer formed on the pad and each gate electrode having  
20 the multi-layered spacer.
3.     The semiconductor substrate of claim 1, wherein the gate polyoxide layer  
prevents the silicon nitride layer from separating from the semiconductor substrate and  
has a thickness of about 50 ~ 100 Å.
- 25           4.     The semiconductor substrate of claim 1, wherein the gate polyoxide layer  
is an oxide layer formed at a temperature of about 800 ~ 900 °C with the injection of  
oxygen.

5. The semiconductor substrate of claim 1, wherein the silicon nitride layer has a thickness of about 100 ~ 500 Å.

6. The semiconductor substrate of claim 1, wherein the oxide layer is an  
5 oxide layer formed at a temperature of about 600 ~ 800 °C using SiCl<sub>4</sub> and O<sub>2</sub>.

7. The semiconductor substrate of claim 1, wherein the oxide layer is a middle temperature oxide layer or a high temperature oxide layer having a dielectric constant of 3.9, and has a thickness of about 100 ~ 500 Å.

10 8. The semiconductor substrate of claim 1, wherein the external spacer is formed of silicon nitride or silicon oxynitride.